National Institute of Environmental Health Sciences

The effect of temperature on mortality in rural Bangladesh-a population-based time-series study

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Abstract:

Background: Studies in urban cities have consistently shown evidence of increased mortality in association with hot and cold weather. However, few studies have examined temperature-mortality relationship in the rural areas of developing countries. In this study we therefore aimed to characterize the daily temperature-mortality relationships in rural Bangladesh. Methods: A generalized linear Poisson regression model was used to regress a time-series of daily mortality for all-cause and selected causes against temperature, controlling for seasonal and interannual variations, day of week and public holidays. A total of 13 270 all-cause deaths excluding external causes for residents under demographic surveillance in Matlab, Bangladesh were available between January 1994 and December 2002. Results: There was a marked increase in all-cause deaths and deaths due to cardiovascular, respiratory and perinatal causes at low temperatures over a lag of 0-13 days. Every 1°C decrease in mean temperature was associated with a 3.2% (95% CI 0.9-5.5) increase in all-cause mortality. However, there was no clear heat effect on all-cause mortality for any of the lags examined. Conclusions: This study found that daily mortality increased with low temperatures in the preceding weeks, while there was no association found between high temperatures and daily mortality in rural Bangladesh. Preventive measures during low temperatures should be considered especially for young infants. Published by Oxford University Press on behalf of the International Epidemiological Association. © The Author 2009.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Meteorological Factors, Precipitation, Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Rural

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: Other Asian Country

Other Asian Country: Bangladesh

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Developmental Effect, Infectious Disease, Morbidity/Mortality, Respiratory Effect

Cardiovascular Effect: Other Cardiovascular Effect

Cardiovascular Disease (other): cardiovascular disease mortality

Developmental Effect: Reproductive, Other Functional Deficit

Infectious Disease: General Infectious Disease

Respiratory Effect: Other Respiratory Effect

Respiratory Condition (other) : respiratory disease mortality

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children, Elderly, Pregnant Women

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified